

P.G DEPARTMENT OF COMPUTER APPLICATIONS

19PMC316 - Operating System

K1 LEVEL QUESTIONS

Unit-1

1. What is operating system?
 - a) collection of programs that manages hardware resources
 - b) system service provider to the application programs
 - c) link to interface the hardware and application programs
 - d) all of the mentioned**
2. To access the services of operating system, the interface is provided by the
 - a) System calls**
 - b) API
 - c) Library
 - d) Assembly instructions
3. Which one of the following is not true?
 - a) kernel is the program that constitutes the central core of the operating system
 - b) kernel is the first part of operating system to load into memory during booting
 - c) kernel is made of various modules which can not be loaded in running operating system**
 - d) kernel remains in the memory during the entire computer session
4. Which one of the following error will be handled by the operating system?
 - a) power failure
 - b) lack of paper in printer
 - c) connection failure in the network
 - d) all of the mentioned**
5. The main function of the command interpreter is
 - a) to get and execute the next user-specified command**
 - b) to provide the interface between the API and application program
 - c) to handle the files in operating system
 - d) none of the mentioned
6. The disadvantage of real addressing mode is :
 - a) there is a lot of cost involved
 - b) time consumption overhead
 - c) absence of memory protection between processes**
 - d) restricted access to memory locations by processes
7. Run time support system is a system that is provided by
 - a) System call routines are mostly written in
 - b) system programs
 - c) system calls interface**
 - d) processes
8. Real time systems must have :
 - a) preemptive kernels**
 - b) non preemptive kernels

- c) preemptive kernels or non preemptive kernels
- d) neither preemptive nor non preemptive kernels
- 9. In distributed system each processor has its own
 - a) local memory
 - b) clock
 - c) both local memory and clock**
 - d) none of the mentioned
- 10. Processes on the remote systems are identified by
 - a) host ID
 - b) host name and identifier**
 - c) identifier
 - d) process ID

Unit-2

- 11. A process can be terminated due to
 - a) normal exit
 - b) fatal error
 - c) killed by another process
 - d) all of the mentioned**
- 12. What is the ready state of a process?
 - a) when process is scheduled to run after some execution**
 - b) when process is unable to run until some task has been completed
 - c) when process is using the CPU
 - d) none of the mentioned
- 13. What is interprocess communication?
 - a) communication within the process
 - b) communication between two process**
 - c) communication between two threads of same process
 - d) none of the mentioned
- 14. The processes that are residing in main memory and are ready and waiting to execute are kept on a list called
 - a) job queue
 - b) ready queue**
 - c) execution queue
 - d) process queue
- 15. Which scheduling algorithm allocates the CPU first to the process that requests the CPU first?
 - a) first-come, first-served scheduling**
 - b) shortest job scheduling
 - c) priority scheduling
 - d) none of the mentioned
- 16. In priority scheduling algorithm
 - a) CPU is allocated to the process with highest priority**
 - b) CPU is allocated to the process with lowest priority
 - c) Equal priority processes cannot be scheduled
 - d) None of the mentioned
- 17. Time quantum is defined in
 - a) shortest job scheduling algorithm
 - b) round robin scheduling algorithm**

- c) priority scheduling algorithm
- d) multilevel queue scheduling algorithm
- 18. An edge from process P_i to P_j in a wait for graph indicates that :
 - a) P_i is waiting for P_j to release a resource that P_i needs**
 - b) P_j is waiting for P_i to release a resource that P_j needs
 - c) P_i is waiting for P_j to leave the system
 - d) P_j is waiting for P_i to leave the system
- 19. A state is safe, if :
 - a) the system does not crash due to deadlock occurrence
 - b) the system can allocate resources to each process in some order and still avoid a deadlock**
 - c) the state keeps the system protected and safe
 - d) all of the mentioned
- 20. To _____ to a safe state, the system needs to keep more information about the states of processes.
 - a) abort the process
 - b) roll back the process**
 - c) queue the process
 - d) none of the mentioned

Unit-3

- 21. CPU fetches the instruction from memory according to the value of
 - a) program counter**
 - b) status register
 - c) instruction register
 - d) program status word
- 22. Which one of the following is the address generated by CPU?
 - a) physical address
 - b) absolute address
 - c) logical address**
 - d) none of the mentioned
- 23. Memory management technique in which system stores and retrieves data from secondary storage for use in main memory is called
 - a) fragmentation
 - b) paging**
 - c) mapping
 - d) none of the mentioned
- 24. What is compaction?
 - a) a technique for overcoming internal fragmentation
 - b) a paging technique
 - c) a technique for overcoming external fragmentation**
 - d) a technique for overcoming fatal error
- 25. Operating System maintains the page table for
 - a) each process**
 - b) each thread
 - c) each instruction
 - d) each address
- 26. Because of virtual memory, the memory can be shared among
 - a) processes**
 - b) threads

- c) instructions
- d) none of the mentioned
- 27. Swap space exists in
 - a) primary memory
 - b) secondary memory**
 - c) cpu
 - d) none of the mentioned
- 28. Effective access time is directly proportional to
 - a) page-fault rate**
 - b) hit ratio
 - c) memory access time
 - d) none of the mentioned
- 29. In FIFO page replacement algorithm, when a page must be replaced
 - a) oldest page is chosen**
 - b) newest page is chosen
 - c) random page is chosen
 - d) none of the mentioned
- 30. A process is thrashing if
 - a) it is spending more time paging than executing**
 - b) it is spending less time paging than executing
 - c) page fault occurs
 - d) swapping can not take place

Unit-4

- 31. The time taken for the desired sector to rotate to the disk head is called :
 - a) positioning time
 - b) random access time
 - c) seek time
 - d) rotational latency**
- 32. The disk bandwidth is :
 - a) the total number of bytes transferred
 - b) total time between the first request for service and the completion on the last transfer
 - c) the total number of bytes transferred divided by the total time between the first request for service and the completion on the last transfer**
 - d) none of the mentioned
- 33. The heads of the magnetic disk are attached to a _____ that moves all the heads as a unit.
 - a) spindle
 - b) disk arm**
 - c) track
 - d) none of the mentioned
- 34. The process of dividing a disk into sectors that the disk controller can read and write, before a disk can store data is known as :
 - a) partitioning
 - b) swap space creation
 - c) low-level formatting**
 - d) none of the mentioned
- 35. To create a file
 - a) allocate the space in file system

- b) make an entry for new file in directory
 - c) allocate the space in file system & make an entry for new file in directory**
 - d) none of the mentioned
36. File type can be represented by
- a) file name
 - b) file extension**
 - c) file identifier
 - d) none of the mentioned
37. file system fragmentation occurs when
- a) unused space or single file are not contiguous**
 - b) used space is not contiguous
 - c) unused space is non-contiguous
 - d) multiple files are non-contiguous
38. Mapping of file is managed by
- a) file metadata**
 - b) page table
 - c) virtual memory
 - d) file system
39. The data structure used for file directory is called
- a) mount table
 - b) hash table**
 - c) file table
 - d) process table
40. In which type of allocation method each file occupy a set of contiguous block on the disk?
- a) contiguous allocation**
 - b) dynamic-storage allocation
 - c) linked allocation
 - d) indexed allocation

Unit-5

41. Linux uses a time-sharing algorithm
- a) to pair preemptive scheduling between multiple processes**
 - b) for tasks where absolute priorities are more important than fairness
 - c) all of the mentioned
 - d) none of the mentioned
42. The first process launched by the linux kernel is
- a) init process**
 - b) zombie process
 - c) batch process
 - d) boot process
43. Standard set of functions through which interacts with kernel is defined by
- a) system libraries**
 - b) kernel code
 - c) compilers
 - d) utility programs
44. Linux is
- a) single user, single tasking
 - b) single user, multitasking

- c) multi user, single tasking
 - d) multi user, multitasking**
45. Windows operating system is used to
- a) coordinate computer activities
 - b) access files on computer
 - c) open and close programs on computer
 - d) all of these**
46. First successful series of windows was
- a) Windows 3.X**
 - b) windows 2000
 - c) Windows XP
 - d) Windows 95
47. Operating system which provides only a command-line user interface is
- a) Mac OS
 - b) DOS
 - c) windows
 - d) UNIX
48. All versions of Windows operating systems are based on technology
- a) IR
 - b) IBM
 - c) NT**
 - d) XP
49. Computer files can exist in folders but folders cannot exist in a
- A. paths
 - B. files**
 - C. folders
 - D. documents
50. Ability of an operating system to control activities of multiple programs at same time is called
- A. multitasking**
 - B. multi processing
 - C. multi operating
 - D. multi paging

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K2 LEVEL QUESTIONS

Unit-1

1. What is an operating system?
An operating system is a program that manages a computer's hardware
2. What is meant by timesharing?
Timesharing (or multitasking) is a logical extension of multiprogramming. The CPU executes multiple jobs by switching among them, but the switches occurs so frequently that the users can interact with each program while it is running.
3. What are the two types of real-time system?
The two types of real-time systems are: a. Hard real-time system, which guarantees that critical tasks be completed on time. b. Soft real-time system, in which a critical real-time task gets priority over other tasks, and retains that priority until it completes.
4. What is the Kernel?
A more common definition is that the OS is the one program running at all times on the computer, usually called the kernel, with all else being application programs.
5. What are Batch systems?
Batch systems are quite appropriate for executing large jobs that need little interaction. The user can submit jobs and return later for the results. It is not necessary to wait while the job is processed. Operators batched together jobs with similar needs and ran them through the computer as a group.
6. What are the advantages of Multiprogramming?
Increased System Throughput Increased CPU utilization
7. What is Multiprocessor System?
Multiprocessor systems have systems more than one processor for communication, sharing the computer bus, the memory, clock & peripheral devices.
8. What are the advantages of multiprocessors?
Increased throughput Economy of scale Increased reliability
9. What is meant by Mainframe Systems?

Mainframe systems are the first computers developed to tackle many commercial and scientific applications.
10. What is meant by clustered system?
Clustered systems are collection of multiple CPUs to accomplish computational work. Those systems share storage and are closely linked via LAN networking.

Unit-2

11. What are the two types of scheduling?
The two types of scheduling are: a. Preemptive scheduling b. Nonpreemptive scheduling
12. What is meant by dispatch latency?
The time taken for the dispatcher to stop one process and start another running is known as dispatch latency.
13. Define throughput.

The number of processes completed per time unit is called throughput.

14. Define turnaround time.

The interval from the time of submission of a process to the time of completion is the turnaround time.

15. Define waiting time.

Waiting time is the sum of the periods spent waiting in the ready queue.

16. Define response time.

Response time is the amount of time it takes to start responding

17. What is meant by deadlock?

A process requests resources; if the resources are not available at that time, the process enters a wait state. Waiting processes may never again change state, because the resources they have requested are held by other waiting processes. This situation is called a deadlock.

18. What is meant by deadlock prevention?

Deadlock prevention is a set of methods for ensuring that at least one of the necessary conditions cannot hold.

19. What is a resource-allocation graph?

Deadlocks can be described more precisely in terms of a directed graph called a system resource allocation graph.

20. What is a safe state?

A state is safe if the system can allocate resources to each process in some order and still avoid a deadlock.

Unit-3

21. What is the main function of the memory-management unit?

The runtime mapping from virtual to physical addresses is done by a hardware device called a memory management unit (MMU).

22. What are the common strategies to select a free hole from a set of available holes?

- a. First fit
- b. Best fit
- c. Worst fit

23. What do you mean by best fit?

Best fit allocates the smallest hole that is big enough. The entire list has to be searched, unless it is sorted by size. This strategy produces the smallest leftover hole.

24. Define lazy swapper.

A lazy swapper never swaps a page into memory unless that page will be needed.

25. What is virtual memory?

Virtual memory is a technique that allows the execution of processes that may not be completely in memory.

26. Define secondary memory.

This memory holds those pages that are not present in main memory.

27. What are the major problems to implement demand paging?

- a. Frame allocation algorithm
- b. Page replacement algorithm

28. What is the use of overlays?

To enable a process to be larger than the amount of memory allocated to it, overlays can be used. The idea of overlays is to keep in memory only those instructions and data that are needed at any

29. What is meant by Suspending a Process?

Suspending is often performed by the system to remove certain processes temporarily to reduce the system load during a peak loading situation.

30. What is meant by Context Switching?

When an interrupt occurs, the operating system saves the status of the interrupted process routes control to the appropriate first level interrupt handler.

Unit-4

31. What is a hit ratio?

The percentage of times that a particular page number is found in the TLB is called the hit ratio

32. What is a file?

A file is a named collection of related information that is recorded on secondary storage.

33. List the various file attributes.

A file has certain other attributes, which vary from one operating system to another, but typically consist of these: Name, identifier, type, location, size, protection, time, date and user identification

34. What is Directory?

The device directory or simply known as directory records information- such as name, location, size, and type for all files on that particular partition.

35. What are the allocation methods of a disk space?

Three major methods of allocating disk space which are widely in use are

- a. Contiguous allocation
- b. Linked allocation
- c. Indexed allocation

36. What are the disadvantages of linked allocation?

Used only for sequential access of files.

37. Define caching.

A cache is a region of fast memory that holds copies of data. Access to the cached copy is more efficient than access to the original.

38. What are the various disk-scheduling algorithms?

- c. SCAN Scheduling

- d. C-SCAN Scheduling
 - e. LOOK scheduling
39. What are the advantages of Indexed allocation?
The advantages are
- a. No external-fragmentation problem
 - b. Solves the size-declaration problems.
 - c. Supports direct access
40. What is a path name?
A pathname is the path from the root through all subdirectories to a specified file. In a two-level directory structure a user name and a file name define a path name.

Unit-5

41. What is system libraries?
The system libraries define a standard set of functions through which applications can interact with the kernel.
42. Define system utilities?
The system utilities are programs that perform individual, specialized management tasks.
43. What is the use of fork() system call?
A new process is created by the fork() system call, and a new program is run after a call to exec().
44. What is Namespace?
Each process is associated with a specific view of the filesystem hierarchy, called its namespace.
45. What is the use of argument vector?
The argument vector simply lists the command-line arguments used to invoke the running program
46. What is extensibility?
Extensibility refers to the capacity of an operating system to keep up with advances in computing technology
47. Expansion of VACB?
virtual address control block
48. What is the native file system of windows?
The native file system in Windows is NTFS.
49. What is RPC?
A remote procedure call (RPC) is a client–server mechanism that enables an application on one machine to make a procedure The component object model

(COM) is a mechanism for interprocess communication that was developed for Windows.call to code on another machine.

50. What is COM?

The component object model (COM) is a mechanism for interprocess communication that was developed for Windows.

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K3 LEVEL QUESTIONS

Unit-1

1. What are the advantages of distributed systems?
2. What are the applications of real-time systems?
3. What is meant by System Calls?
4. What is meant by Hand held Systems?
5. List the different categories of system calls.
6. When are real-time systems used?
7. What are the advantages of a time-sharing operating system?
8. What is the use of fork and exec system calls?
9. What are the benefits of multithreaded programming?
10. Compare user threads and kernel threads.

Unit-2

11. What is preemptive and nonpreemptive scheduling?
12. What is the different process states available?
13. How is Blocked state different from others?
14. What is meant by Degree of Multiprogramming? And when it is said to be Stable?
15. What are the conditions that must hold for Deadlock Prevention?
16. What are the options for breaking a Deadlock?
17. What is meant by Indefinite Blocking or Starvation?
18. How can you solve deadlock?
19. What is the difference between CPU-Bound and IO-Bound process?
20. Differentiate Direct and indirect communication?

Unit-3

21. Explain logical Vs physical address space?
22. Compare dynamic loading with dynamic linking?
23. Differentiate between internal fragmentation and external fragmentation.
24. What is the difference between hashed page table and inverted page table?
25. What is the difference between paging and segmentation?

26. How can you find the effective memory access time?
27. What is the difference between PTBR and TLB?
28. Compare fixed partition and variable partition methods of memory allocation.
29. What are shared libraries?
30. Differentiate dynamic linking and dynamic loading?

Unit-4

31. Compare SCAN scheduling and C-SCAN scheduling?
32. What is the basic approach of page replacement?
33. State Belady's anomaly.
34. How does most frequently used page-replacement work?
35. Compare different types of files.
36. What are different directory structures.
37. What is meant by Global Replacement and Local Replacement?
38. What is meant by Working Set?
39. Compare various RAID levels?
40. Compare 2-level directory with higher level directory structures.

Unit-5

41. Design principle of LINUX – Discuss.
42. Compare kernel mode with user mode?
43. What is fair scheduling.
44. Compare static and dynamic linking in Linux.
45. Define VFS? . Explain.
46. Discuss user mode and protected mode in windows 2000.
47. Compare dispatcher object with compare object.
48. What is threads and process.
49. What is trap handling?
50. What do you mean by local procedure call?

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K4 & K5 LEVEL QUESTIONS

Unit-1

1. Explain Desktop Systems?
2. Explain Mainframe systems?
3. Discuss on multiprocessor systems?
4. Explain types of clustering?
5. Explain about system calls?

Unit-2

6. Explain process states.
7. Discuss on interprocess communication.
8. Explain priority-based scheduling?
9. Explain Banker's algorithm?
10. Explain deadlock prevention?

Unit-3

11. Explain Paging and segmentation?
12. Explain segmentation hardware?
13. Explain hierarchical paging?
14. Discuss on hashed page table.
15. Explain thrashing?

Unit-4

16. Explain the working principle of magnetic disk?
17. Explain FCFS scheduling?
18. Discuss on SSTF scheduling?
19. Explain SCAN scheduling?
20. What are the different types of files?

Unit-5

21. Explain process management in Linux.

22. Discuss on file system in Linux.
23. How security mechanism is handled in Linux.
24. Explain system components in Windows 2000.
25. Explain the programmer interface in windows 2000.